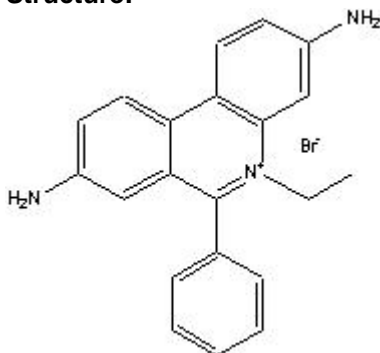


## TECHNICAL INFORMATION

Catalog Number: 190202, 193993, 802511, 806808, 806810, 806812, 806113, 806814

### Ethidium Bromide

#### Structure:



**Molecular Formula:** C<sub>21</sub>H<sub>20</sub>N<sub>3</sub>Br

**Molecular Weight:** 394.31

**CAS # :** 1239-45-8

**Synonyms:** 2,7-Diamino-10-ethyl-9-phenylphenanthridinium bromide; Homidium bromide

**Physical Description:** Reddish-purple, biconvex, round tablets

**Solubility:** Soluble in water. Tablets should be dissolved in water, usually to a concentration of 10 mg/ml (1 tablet in 10 ml distilled, deionized water); slightly soluble in ethanol; partially soluble in chloroform.

**Description:** Used in the fluorometric detection of double stranded nucleic acids in gel electrophoresis. Also acts as an RNA polymerase inhibitor, and in separation of high molecular weight DNA's. Confers a deep red stain to DNA by acting as an intercalating agent between the starch bases. Subsequent fluorescence techniques enable the extraction and characterization of DNA bands.

#### Typical Procedures

##### *Ethidium Bromide Fluorescence of DNA*

"A rapid semiquantitative method for estimating the amount of DNA in samples containing contaminating substances is to utilize the UV-induced fluorescence emitted by ethidium bromide molecules intercalated into DNA. The quantity of DNA can be estimated by comparing the intensity of the sample fluorescence with that of a series of standards. The assay is sensitive for concentrations of 0.50 to 20 ug/ml.

"A simplified procedure involves spotting equal volumes (1-5 uL) of DNA standards on a sheet of transparent plastic wrap (Saran Wrap®) stretched over a UV light source. An equal volume of buffer (10 mM Tris, 1 mM EDTA, pH 7.2, containing 2 ug/mL ethidium bromide) is added to each standard and sample. The concentration of the unknown sample is estimated by comparison to the intensity of fluorescence of the standards when irradiated with short-wavelength (254 nm) UV light."<sup>2</sup>

##### *The Establishment of Purity and the Separation of DNA Strands by Electrophoresis*

"Electrophoresis of DNA in agarose minigels containing ethidium bromide provides a rapid method of measuring both the quantity of DNA and its purity. Minigels are poured on 5 cm x 8 cm glass plates and sample slots are formed with a minicomb. The gel slots will hold 3-5 ul of sample. The agarose gel (0.5-2.0%) contains 0.5 ug/ml ethidium bromide. The gel is submerged just under the surface of the buffer in the electrophoresis cell. The resistance of the gel to passage of the current is almost the same as the buffer, so a considerable fraction of the applied current is carried through the gel. Electrophoresis is carried out at high voltage (15 V/cm) for 30 minutes, during which the tracking dye, bromophenol blue, migrates almost the full length of the gel. DNA standards (0.5-50 ug/ml) can be run in the other slots of the gel and the fluorescence of the unknown can be compared to that of the standards to estimate the amount of DNA present in each fragment. This rapid electrophoresis method is especially useful for restriction endonuclease mapping of large nucleic acid molecules."<sup>2</sup>

#### Availability:

Catalog Number	Description	Size
190202	Ethidium Bromide	250 mg 1 g 5 g 10 g 25 g

193993	Ethidium Bromide, Molecular Biology Reagent	250 mg 1 g 5 g 25 g
806113	Ethidium Bromide, Purity ~98%	5 g
802511	Ethidium Bromide Solution, 10 mg/ml	10 ml
806808	Ethidium Bromide Tablets, 100 mg per tablet	10 tablets
806810		25 tablets
806812		50 tablets
806814		100 tablets

**References:**

- Waring, M.J., *Biochem. Biophys. Acta.*, **v. 114**, 234 (1966).
- John F. Robyt and Bernard J. White, *Biochemical Techniques: Theory and Practice*, Brooks/Cole Publishing Co.: Monterey, CA; sections 7.3.2.2 and 10.3.3 (1987).